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## Message in a Bottleneck

The Net Effect By Simson

Garfinkel January/February 2002

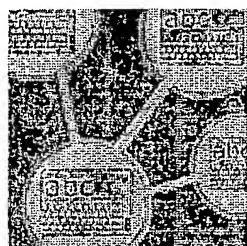


Illustration by Jason Howard  
Stats

**Why doesn't the U.S. appreciate wireless text messaging? It has no standards.**

I was loading up a moving van on Martha's Vineyard the morning of September 11 when the first jet hit the World Trade Center. As soon as I heard the news I tried to call my wife, Beth, who was 150 kilometers away at our house near Boston. No dice: my desk telephone could not place a call off-island. I tried my cell phone: it didn't work either.

I desperately needed to communicate with my wife. If Boston were to be attacked, or if there were going to be more incidents in New York, then it made sense for me to stay put on the Vineyard and for her to gather up our three young children and join me. If the attacks were localized to New York City, then I wanted to return to Boston. Realizing that any attempt at a voice connection would probably be in vain, I typed a brief e-mail message on my laptop and clicked "send." A moment later Beth's pager beeped and the message appeared. She pecked out a response on its tiny keyboard, and less than a minute later I had my answer: come back to Boston.

Beth and I were not alone. In the aftermath of the terrorist attacks, many people discovered that wireless text messaging systems were consistently more reliable and more resilient than telephones. The reason, most likely, is that sending a text message requires dramatically less data than a voice conversation. This means that text systems are less prone to overloading during the kind of communications frenzy that occurred on September 11.

A plethora of wireless text messaging services are in use today—and not just for emergencies. The compact two-way pagers that link my wife and me together are an unobtrusive way to chat throughout the day. It's also possible to send two-way text messages on many cell phones—although it's much easier on some than others. The popular BlackBerry device from Waterloo, Ontario-based Research in Motion has become a powerful two-way wireless e-mail tool for many businesses: it's twice the size and twice the price of my two-way pager, but it directly integrates with many corporate e-mail systems. And then there are the wireless modems available for handheld computers like the Palm, which let you both browse the Internet and send e-mail.

Many people who have never tried wireless messaging think that it's just another techno-gadget—a technology looking for a market. But as soon as they try it, most realize that it's friendlier, faster, more reliable, less intrusive and generally a lot cheaper than making a cell-phone call. The big difference is synchronicity. With the phone, Beth and I both have to be present at the same instant. With messaging, I can send her a question when I want, and she can answer it on her own time—handy if she's changing a diaper when I try to reach her (or doing something really important, like sleeping).

This combination of attributes has given rise in the United States to a dedicated, but perplexingly small, following for two-way wireless messaging systems. Only about 1.5 million people use the two-way text messaging systems offered by Research in Motion, SkyTel Communications of Jackson, MS, and Arch Wireless of Westborough,

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How Not to Fight Terror  
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Research in Motion  
SkyTel Communications  
Arch Wireless

Technological Strength/Rank	Number of Patents
2000	95-99
313/1	282/1
207/2	221/2
153/3	187/3
114/4	176/4

96/5	113/5	132	14
74/6	83/6	97	11

66/7	75/7	125	13
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51/8	73/8	81	7
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40/9	16/11	29	1
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27/10	31/9	63	6
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22/11	12/12	28	1
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19/12	23/10	28	3
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13/13	6/13	13	1
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153/3	187/3	232	22
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114/4	176/4	112	17
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MA. That's just a tiny fraction of the number of people who carry cell phones—and therein lies the rub.

Two factors have severely hampered U.S. adoption of wireless text messaging. The first is diversity. Cell phones pretty much all look alike, and in the United States they all have pretty much the same user interface: you dial a number and press a button labeled "talk" or "OK." But each of the many different two-way wireless text systems has a very different interface. This has made marketing the service much harder, because it has prevented the accumulation of a critical mass of users who provide free advertising, testimonials and demonstration.

The second problem is unification. Right now, all our two-way text systems are pretty much islands: they don't work well with other wireless services. And although every system can send and receive Internet e-mail, it is considerably easier for me to send two-way messages from my SkyTel pager to another SkyTel pager than to a device hooked up to a different service.

It doesn't have to be this muddled. Europe has avoided these problems entirely by settling on a single wireless-telephone system called GSM (Global System for Mobile communications); easy-to-use, two-way text messaging is built into the protocol. Europeans call it SMS, for Short Message Service. If you want to send a message, all you need to know is the recipient's phone number. Just dial the number, type the message onto your phone's keypad and press the send button. Voilà: instant two-way communication. The service has become extraordinarily popular. In September 2001, for instance, the system carried 23 billion text communiqués—ten times as many as the previous September.

Europeans use cell-phone-based text messaging for the same reasons that I use two-way paging with my wife: it's fast, convenient, unobtrusive and cheap. And European society has comfortably assimilated the technology. It is now well within the bounds of European business etiquette, for example, to leave your telephone on the table during a meeting and quietly scan the incoming text messages in case anything urgent comes through. "SMS resembles telepathy," says Risto Linturi, one of Finland's leading telecom consultants. European cell-phone companies like the text messaging service too because it's a lucrative add-on. Companies are able to charge one to 10 cents for each message, even though the actual cost of sending a few lines of text is virtually nil. That's because the messages use air time far more efficiently than voice conversations do. A typical message of the maximum allowed length (160 characters) occupies the airwaves for only a fraction of a second. ←

Despite this overseas success, U.S. cell-phone companies have resisted boarding the Short Message Service bandwagon. The problem, it turns out, is a combination of availability and compatibility. Although virtually all U.S. cell-phone companies offer some form of two-way messaging from their handsets, they use different, incompatible formats. VoiceStream Wireless and AT&T Wireless, for instance, both offer genuine, two-way, phone-to-phone Short Messaging Service communications over their networks. But try sending a message from a VoiceStream phone to an AT&T phone and you hit a wall.

And such incompatibility isn't the worst of it. Sprint PCS doesn't allow direct two-way messaging at all. Instead, Sprint requires its customers to use their cell phones' built-in browsers to go to a special Web site that allows them to send and receive messages. This is all done with an incredibly painful system called WAP (for Wireless Application Protocol), which defies usability. Nextel Communications offers a fourth, disconnected island of two-way messaging, with interoperation only between Nextel phones.

Just about the only thing that U.S. carriers have done right is to create Internet e-mail gateways for their subscribers. Most cell phone users can now send email by tapping out a message and the recipient's e-mail address. If you send me a message from your phone and I reply, the first

100 characters or so of my reply will show up on your phone. It's better than nothing, but it's still not as good as European-style text messaging, where I'd only need to know your phone number. To e-mail your phone in the United States, I need your phone number, the name of your cell phone company, and information about how the gateway works.

Some people say there's a good reason why we in the United States have not flocked to these services. The near ubiquity of e-mail means that many Americans already have a way to send two-way text messages. But e-mail is a fundamentally different medium. It's good for longer missives and for sending attached documents that you read on your desktop or laptop computer. You pick up your e-mail messages when you are at home or at work. Text services deliver messages on the go—quick notes that demand your immediate attention, like a reminder to get eggs when you are driving to the supermarket.

Here's another reason why two-way text messaging is failing in the United States: unbridled competition. Europe's telecommunications carriers got together and decided on the Global System for Mobile communications standard for wireless phones. The United States has let phone companies compete not just for customers, but in technology and standards. Alas, that competition has created a cacophony of mostly incompatible and underused systems. Maybe that's a message that our policymakers should heed.

Simson Garfinkel writes on information technology and its impact. He is the author of *Database Nation* (O'Reilly, 2000).

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